Shedding Light on Light Bulbs

Today's consumer has a considerable collection of choices with regards to light bulbs used in lamps and overhead lighting. **Table 1** summarizes some of the options.

Table 1

Bulb Type	Price	Lumen/ Watt*	Life Span	Color Temp.	Remarks
Incandescent 	Low	15	750 - 1000 hrs	2700 K	Most traditional bulb; purchase and manufacture of bulb is banned in the US.
Halogen 	Medium	25	3000 hrs	3000 K	Very bright bulb. Produces excessive heat; not practical for children's rooms.
CFL 	Medium	60	10000 hrs	2700 K – 6500 K	CFL = compact fluorescent light. Does not get hot. Contains mercury.
LED 	High	45	45000 hrs	2700 K – 6500 K	LED = light emitting diode. Does not get hot.

* The unit *lumens* refers to the intensity of light that is emitted by the light bulb. The unit *Watts* refers to the amount of electrical energy consumed by the light bulb.

One characteristic worth further discussion is the color temperature of the bulb. The white light from a bulb is an indication that all the colors of visible light are present. Yet the light from some bulbs is *richer in blue light*; that is, they are more concentrated with blue. These bulbs have a lower color temperature and are referred to as *cool lights*. Other bulbs have a *warmer* hue and are richer in yellow, orange and red colors. **Table 2** lists a variety of light sources and their color temperature. **Figure 1** shows the various wavelengths of the visible light spectrum and their color temperature (in Kelvin).

Table 2

Source	Color Temp.
Match flame	1700 K
Candle flame	1850 K
Moonlight	4100 K
Natural daylight	5000 K
Overcast daylight	6500 K

Figure 1